DETAILED ACTION

This action is in response to Applicant's remarks filed on 10/20/2011.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 18,19,22,25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Dillier (US 2002/0110786)

Thomas discloses a method and corresponding system for carrying out said method of creating a dental prosthesis comprising scanning a patient's teeth (column 10, lines 10-14); recording and digitizing 3-D anatomical relationships in an oral cavity (i.e. step 20); and processing the data (i.e. digital map Q) received from the anatomical relationships in such a way that relevant anatomical structures for virtual placement of teeth (i.e. digital map M) are securely affixed so that a complete virtual model (i.e. merged image N) can be obtained for direct manufacture of a denture base according to the digital data (column 12, lines 1-3 and column 14, lines 51-55). Thomas also discloses the step of simulating mandibular movements on a computer by providing various views (i.e. R) as a positioning aid (column 13, lines 45-49). Thomas additionally discloses the prosthesis can be rapid prototyped (column 10, lines 53-57). Examiner further notes that the scanning of the patient's oral cavity includes the entire cavity (column 13, lines 14-19), wherein occlusion rims and bite rims are held in the art as

equivalent structures since occlusion is defined as the way the upper and lower teeth bite together. However, Thomas fails to disclose a method that includes: scanning fabricated teeth to produce 3D data records of fabricated teeth; selecting fabricated teeth from 3D data records; and virtually placing the teeth into the virtual model.

Dillier teaches a method of manufacturing a dental prosthesis (abstract) that includes: scanning fabricated teeth to produce 3D data records of fabricated teeth; selecting fabricated teeth from 3D data records; and virtually placing the teeth into the virtual model [0045] (see claim 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Thomas to include the method taught by Dillier, in order to provide a method of manufacturing a dental prosthesis that is less error prone and easier to automate.

2. Claim 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Dillier as applied to claim 19 above, and further in view of Baumrind (US 6,621,491).

Thomas/Dillier discloses a method of creating a dental prosthesis as previously described but fails to show that an oral situation is recorded directly using a 3-D camera. Baumrind, however, teaches a method for recording 3-D diagnostic data of an oral situation using a 3-D camera (30, Figure 1; col 3, ln 35-40 and 48-51). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to record an oral situation using a 3-D camera in order to provide a holistic view of the patient for treatment purposes as taught by Baumrind.

3. Claim 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Dillier as applied to claim 19 above, and further in view of Chishti (US 5,975,893).

Thomas/Dillier discloses a method of creating a dental prosthesis as previously described but fails to show scanning a plaster model. Chishti, however, teaches scanning a plaster cast of teeth to obtain 3-D data (col 5, ln 38-48). Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to scan a plaster model so that the patient is not exposed to X-rays as taught by Chishti.

4. Claims 23,24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Dillier as applied to claim 19 above, and further in view of Jordan et al. (US 6,152,731).

Thomas/Dillier discloses the method of creating a dental prosthesis as previously described but fails to show the step of inspecting function and occlusion on the computer. Jordan, however, teaches a method for creating a dental model whereby occlusion of a virtual model is inspected on the computer (col 23, ln 62-64). Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to inspect function and occlusion of the digitized virtual model as taught by Jordan in order to test it to ensure it has been created properly and is in working order. As to claim 24, Jordan further discloses the placement of teeth is

manually corrected and a new calculation is performed to adapt to the bite and occlusion data (col 21, ln 17-45).

Response to Arguments

5. Applicant's arguments filed 08/15/2011 have been fully considered but they are not persuasive. Applicant argues that claim 27 falls under one of two embodiments that were disclosed in claim 19 and that the embodiments were original to claim 1. However, claims 1 and 19 are considered as generic claims that can encompass both embodiments. Restriction was done when a more specific claim (i.e. claim 27) was addressing a single embodiment that was not examined before. Therefore, the election by original presentation is deemed proper. The Applicant argues the combination of Dillier and Thomas in that there is no motivation to combine since Talks about dentures for a full dental arch and Dillier teaches replacing a single teeth. However, the examiner respectfully disagrees The Examiner is using Dillier to teach the method of scanning to produce a library of 3D data records of fabricated teeth and the step of virtually placing the teeth in the virtual model. The fact that Thomas is for multiple teeth rather than a single teeth does not preclude the advantage of modifying Thomas with the method of Dillier (the motivation is given in the rejection above). Furthermore one of ordinary skill in the art would be capable of modifying Dillier to include a plurality of teeth models in order to provide a full set for dentures. The Applicant is reminded that Thomas is the reference that is being modified and that Dillier is the teaching reference. Applicant argues that Thomas would not have looked at Dillier to combine; however, the examiner respectfully disagrees and the motivation would be to provide a method of

manufacturing a prosthesis that is less error prone (see rejection above0. The Applicant argues that the combination does not teach all the limitations and that the examiner did not respond to the previous arguments that element (e) was not addressed in the last office action. The examiner asserts that Thomas teaches the limitation of element (e) in that Thomas teaches simulating movements of the jaw such as smiling, frowning, to see how the prosthesis will look and thus showing ideal position of the dentures (column 13, lines 45-50). The applicant further argues that the combination does not teach making a virtual model including anatomical relationships to the oral cavity. However, the examiner respectfully disagrees. Thomas discloses scanning the oral cavity to produce a digital map Q that includes the anatomical relationships (column 13, lines 14-23). The Applicant further argues that if Dillier is making a die, why a person skilled in the art would apply the steps to propose to Thomas' fundamentally different method being carried out in an oral cavity. However, the Examiner respectfully disagrees. Dillier does not disclose a method of forming a die. The method is to form a customized prosthesis (see abstract and claims). Dillier uses a die to form a model of the patient's teeth; however, the method is for making a prosthesis which is in the same field of invention as Thomas since Thomas is also means of making a prosthesis. Therefore, it is the Examiner's position that the two references are combinable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUNIL K. SINGH whose telephone number is (571)272-

3460. The examiner can normally be reached on Monday-Friday (Increased Flex Schedule).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris L. Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

10/20/2011

/SUNIL K SINGH/
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